

CLAIMS

1. A wireless communication apparatus
communicating with another wireless communication
apparatus in an autonomous distributed network without
5 any specific control station apparatus,

said wireless communication apparatus
comprising:

a frame period setting means for setting a
predetermined frame period by each wireless communication
10 apparatus;

a data slot setting means for setting slots
serving as data transmission units; and

a reception slot setting means for setting at
least one reception slot for receiving a signal in said
15 frame period.

2. A wireless communication apparatus as set
forth in claim 1, further comprising:

a transmitting means for transmitting a
beacon signal to another wireless communication apparatus
20 at a predetermined timing of said frame period, which
beacon has information about a timing of the reception
slot set by said reception slot setting means and

a receiving means for receiving a signal
which is transmitted by another wireless communication
25 apparatus.

3. A wireless communication apparatus as set forth in claim 2, wherein said receiving means receives signal at a timing of the reception slot set by said reception slot setting means.

5 4. A wireless communication apparatus as set forth in claim 1, further comprising a beacon transmitting means for transmitting a beacon signal at a timing of the head of the frame period.

5. A wireless communication apparatus as set forth in claim 1, further comprising:

 a data transmitting means for transmitting data to another wireless communication apparatus,

 a storage means for storing timings of reception slots of other wireless communication
15 apparatuses, and

 a control means for making said data transmitting means transmit data at a timing of a reception slot of another wireless communication apparatus when there is some transmission data to the
20 other wireless communication apparatus.

6. A wireless communication apparatus for communicating with another wireless communication apparatus in an autonomous distributed network without any specific control station apparatus,

25 said wireless communication apparatus

comprising:

a frame period setting means for setting a predetermined frame period by each communication apparatus;

5 a data slot setting means for setting slots serving as data transmission units;

a scan period setting means for setting any scan period longer than said frame period; and

a scanning means for receiving a beacon
10 signal transmitted from another wireless communication apparatus over a time of said frame period unit.

7. A wireless communication apparatus as set forth in claim 6, further comprising:

a managing means for converting the timing of
15 said received beacon signal and the timing of the reception slot into its own slot positions and managing the same and

a transmitting means for transmitting a signal at the timing of the reception slot of the
20 corresponding wireless communication apparatus when there is data directed to another wireless communication apparatus.

8. A wireless communication apparatus as set forth in claim 7, further comprising a control means for
25 making said transmitting means transmit a signal at the

timing of the reception slot of the corresponding wireless communication apparatus when there is data directed to the other wireless communication apparatus,

the scanning means obtaining the timing of
5 the beacon signal and the timing of the reception slot from said other wireless communication apparatus.

9. A wireless communication apparatus as set forth in claim 6, further comprising a beacon transmitting timing control means for controlling the
10 timing of transmission of its own beacon so as not to collide with the beacon of the other wireless communication apparatus,

the scanning means receiving a beacon from another wireless communication apparatus.

15 10. A wireless communication apparatus as set forth in claim 6, further comprising a transmitting means for and transmitting a beacon signal at a predetermined timing of the above frame period, wherein beacon signal has information relating to a beacon transmitting slot
20 transmitted from another wireless communication apparatus obtained by said scanning means.

11. A wireless communication system for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without
25 a specific control station apparatus, wherein

each of the wireless communication
apparatuses configuring the network comprises:

a frame period setting means for setting a
predetermined frame period;

5 a data slot setting means for setting slots
serving as data transmission units;

a beacon slot setting means for setting
beacon slots for transmitting beacon signals at a
predetermined timing of said frame period; and

10 a reception slot setting means for setting at
least one reception slot for the receiving operation in
said frame period.

12. A wireless communication system as set forth
in claim 11, wherein the system transmits the beacon
15 signal at the timing of the head of said frame period.

13. A wireless communication system as set forth
in claim 12, wherein timings by which wireless
communication apparatuses transmit beacons are arranged
so as not to overlap each other.

20 14. A wireless communication system as set forth
in claim 11, further comprising:

a transmitting means for transmitting a
beacon signal which has information about a timing of a
reception slot set by said reception slot setting means
25 and informing its presence to another wireless

communication apparatus in the neighborhood,

a scan period setting means for setting any scan period longer than said frame period, and

a managing means for managing the timing of
5 receiving said beacon signal and the timing of the reception slot and

performing scan processing for continuous reception over a time of said frame period unit and receiving a beacon signal of another wireless
10 communication apparatus in the neighborhood.

15. A wireless communication method for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without a specific control station apparatus, wherein

15 each wireless communication apparatus sets a predetermined frame period and slots serving as data transmission units and

sets at least one beacon slot for transmitting the beacon signal at a predetermined timing
20 of said frame period and reception slot for the receiving operation in said frame period.

16. A wireless communication method as set forth in claim 15, transmitting a beacon signal which has information about the timing of the set reception slot
25 and informing its presence to another wireless

communication apparatus located in the neighborhood.

17. A wireless communication method as set forth
in claim 15, having a wireless communication apparatus
which engages in reception processing at a timing of said
5 set reception slot and receive data transmitted from
another wireless communication apparatus.

18. A wireless communication method as set forth
in claim 15, wherein the system transmits a beacon signal
at a timing of the head of said frame period.

10 19. A wireless communication method for
communication among a plurality of wireless communication
apparatuses in an autonomous distributed network without
a specific control station apparatus, wherein

each wireless communication apparatus sets a
15 predetermined frame period and slots serving as data
transmission units,

provides any scan period longer than said
frame period, performs scan processing for continuous
reception over the time of said frame period unit, and

20 receives a beacon signal transmitted from
another wireless communication apparatus located in the
neighborhood.

20. A wireless communication method as set forth
in claim 19, further comprising a step of managing the
25 timing of the reception of the beacon signal transmitted

from said other wireless communication apparatus and the timing of the reception slot.

21. A wireless communication method as set forth in claim 19, further comprising steps of:

5 storing a timing of a beacon signal from another wireless communication apparatus located in the neighborhood and a timing of the reception slot and
 engaging in a transmitting operation at a timing of the reception slot of the corresponding
10 communication apparatus when there is data destined for another wireless communication apparatus.

22. A wireless communication method for communication among a plurality of wireless communication apparatuses in an autonomous distributed network without
15 a specific control station apparatus, comprising, at each wireless communication apparatus, the steps of:

 setting a predetermined frame period and slots serving as data transmission units,

 setting at least one beacon slot for
20 transmitting a beacon signal at a timing of the head of said frame period and a reception slot for a receiving operation in said frame period,

 transmitting a beacon signal which has information about the timing of the set reception slot
25 and, notifies existence to another communication

apparatus located in the neighborhood,

setting any scan period longer than said
frame period and performing scan processing for
continuous reception over the time of said frame period
5 unit.

23. A wireless communication method as set forth
in claim 22, further comprising steps of:

receiving the beacon signal of another
wireless communication apparatus located in the
10 neighborhood, managing the timing of the reception of
said beacon signal and the timing of the reception slot,
and

transmitting a signal at the timing of the
reception slot of the corresponding wireless
15 communication apparatus when communicating directed to
another wireless communication apparatus.

24. A wireless communication method as set forth
in claim 22, further comprising a step of receiving a
beacon from another wireless communication apparatus by
20 said scanning processing and controlling the timing of
transmission of its own beacon so as not to collide with
the beacon of the other wireless communication apparatus.

25. A wireless communication method as set forth
in claim 22, further comprising a step of transmitting a
25 beacon signal at a predetermined timing of the above

frame period, which beacon signal has information relating to a beacon transmitting slot transmitted from another wireless communication apparatus obtained by said scanning processing.

5